

*ISWG Member & Technical Advisors Review Of Preliminary Draft (Revision 2.0)*

*Induced Seismicity by Injection Associated With Oil & Gas Development:  
A Primer on Technical & Regulatory Considerations Informing  
Risk Management and Mitigation*

**REVIEW QUESTIONS**

*SPECIAL NOTE: Reviews must be submitted by June 15, 2015 (5pm CDT) in Microsoft Word format in order to be considered; please type your responses directly in the spaces provided below. When submitting your review, please save the file with your last name appended to the file name so that the Editorial Committee can identify reviewers for follow-up clarifications should any questions arise regarding interpretation of reviewer comments.*

**1. Primary Technical Content**

***The ISWG has focused on four key technical areas as provided in Sections 5 – 8 of the Primer. These four areas are: (a) Ground Motion, (b) Monitoring, (c) Data / Information, and (d) Mitigation and Response.***

- a. Is the information contained in these sections effectively capture what is current state of information and knowledge associated with these topics? If not, please identify which section(s) of the Primer may not effectively capture the current state of information and knowledge, and please comment on specific additional knowledge or information that should be included, and please provide appropriate references for sources of this additional knowledge and information.***

*Insert your review comments directly here ....*

- b. Is all of the information contained in these sections technically accurate? If not, please identify which section(s) of the Primer may not be technically accurate, and please comment on what changes should be made to provide technical accuracy.***

*Insert your review comments directly here ....*

- c. As an informational document, the Primer is not intended to offer recommended rules or regulations; has content of Sections 4-8 appeared to meet this objective ? If not, please identify any areas of text that may be construed as recommending rules or regulations.***

*Insert your review comments directly here ....*

## **2. Content & Discussion in Section 4 “Background & Issues Overview”**

*The ISWG has focused Section 4 on providing an overview and summary discussion of geology, earthquakes, induced seismicity, “Faults-of-Concern”, earthquake hazards, key findings of the National Research Council’s (2012) report, the US Department of Energy protocol for enhanced geothermal systems, the EPA (2015) report, the USGS (2015) preliminary hazard map report, methods for assessing “causation”, and risk management approaches.*

- a. Does the information contained in these sub-sections of Section 4 effectively summarize the key concepts and conclusions associated with each topic? If not, please identify the specific topic which may not effectively summarize the key concepts and conclusions, and please comment on specific additional key concepts and conclusions that should be considered for inclusion, and please provide additional references as appropriate.*

*Insert your review comments directly here ....*

- b. Is all of the information contained in Section 4 accurately summarized and/or portrayed? If not, please identify which areas of Section 4 may not be accurately summarized and/or portrayed, and please comment on what changes should be considered to improve summary.*

*Insert your review comments directly here ....*

- c. Are the major key references associated with each topic included? If not, please identify any additional major references that should be considered to provide an effective overview and summary discussion of the topics in Section 4.*

*Insert your review comments directly here ....*

## **3. Content of Section 9.0 “Considerations for External Communication & Engagement”**

*Given the complexity of the issue and heightened public concerns surrounding the issue, a section on considerations for external communication and engagement is included.*

- a. Does the information described in Section 9 provide effective and balanced overview from all perspectives, including regulatory, industry, NGO, and public perspectives? If not, please identify how Section 9 may be improved to enhance the content.*

*Insert your review comments directly here ....*

- b. Does the information described in Section 9 complete and accurate from all perspectives, including regulatory, industry, NGO, and public perspectives? If not, please identify how Section 9 may be improved to enhance the content.*

*Insert your review comments directly here ....*

**4. Content of Section 10.0 “Considerations for Well Completions & Hydraulic Fracturing”**

*While the emphasis of the Primer has been on UIC Class II disposal wells, given the broad public interest and discussion of “hydraulic fracturing”, Section 10 is included to provide state-of-knowledge related to hydraulic fracturing and potential for induced seismicity.*

- a. Is all of the information contained in Section 10 accurately summarized and/or portrayed? If not, please identify which areas of Section 10 may not be accurately summarized and/or portrayed, and please comment on what changes should be considered to improve summary.*

*Insert your review comments directly here ....*

- b. Are the major key references associated with hydraulic fracturing included? If not, please identify any additional major references that should be considered to provide an effective overview and summary discussion of the topics in Section 10.*

*Insert your review comments directly here ....*

**5. General Comments**

*If there are any additional comments that you may have to share with the ISWG Editorial Committee, please summarize these below, with appropriate reference to Section and page number, with your comment and/or suggested revision.*

*Insert your review comments directly here ....*